

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A device for detecting the presence of pathogens trapped in an electric field, comprising

a fluidic channel through which pathogen flow a fluid carrying said pathogens flows, said fluidic channel having a surface,

at least one pair of interdigitated electrodes positioned in a on said surface of the said fluidic channel with a space between said interdigitated electrodes,

said at least one pair of interdigitated electrodes localized along said fluidic channel, with said at least one pair being located on the same surface of said fluidic channel, said interdigitated electrodes having electrode plates with a surface,

antibodies immobilized on said surface of said electrode plates and immobilized in said space between said interdigitated electrodes, wherein said pathogens carried by said fluid attach to said immobilized antibodies,

an AC power source for applying a voltage across electrode plates of said at least one pair interdigitated electrodes for producing an electric field to enable trapping of pathogens passing through the said fluidic channel, and

means for measuring the impedance between the said electrode plates for determining the presence of trapped pathogens.

2. (Currently) The device of Claim 1, additionally including a plurality plurality of spaced interdigitated electrodes located along a length of the fluidic channel.

3. (Original) The device of Claim 2, wherein each of said interdigitated electrodes is provided with a means for measuring the impedance thereof.

4. (Original) The device of Claim 2, wherein said means for measuring the impedance is operatively connected to each of the electrode plates of the spaced interdigitated electrodes.

5. (Currently Amended) The device of Claim 1, wherein said electrode plates ~~has~~ have at least one leg located in spaced relation to at least one leg of ~~the other~~ another of the pair of plates.

6. (Original) The device of Claim 5, wherein each of said electrode plates includes a pair of space leg sections each of said leg section of one of the electrode plates being located adjacent to a leg section of another of said electrode plates.

7. (Currently Amended) The device of Claim 1, ~~wherein~~ wherein said means for measuring the impedance, comprises: a plurality of signal generators, a current sensor, a plurality of amplifiers, and a plurality of mixers to measure in-phase and out-of-phase components of impedance between the electrode plates.

8. (Currently Amended) In a device for trapping particles in an electric field formed by electrodes the improvement comprising:

a fluidic channel through which a fluid carrying said pathogens flows, said fluidic channel having a surface,

at least one pair of interdigitated electrodes positioned on said surface of said fluidic channel with a space between said interdigitated electrodes,

said at least one pair of interdigitated electrodes localized along said fluidic channel, with said at least one pair being located on the same surface of said fluidic channel, said interdigitated electrodes having electrode plates with a surface,

antibodies immobilized on said surface of said electrode plates and immobilized in said space between said interdigitated electrodes, wherein said pathogens carried by said fluid attach to said immobilized antibodies,

means for detecting the presence of trapped particles,
said means including means for the detection of impedance changes between the electrodes said electrode plates.

9. (Currently Amended) The improvement of Claim 8, wherein said means comprises a sensor for measuring impedance change between the electrodes electrodes.

10. (Original) The improvement of Claim 9, wherein said electrodes comprise plates of interdigitated electrodes and wherein said sensor is operatively connected to said plates.

11. (Currently Amended) The improvement of Claim 9, wherein said sensor comprises: A a pair of signal generators, a current sensor connected to one of said electrodes, a pair of parallel connected amplifier/mixer assemblies operatively connected to said current sensor, said pair of signal generators being operatively connected to a mixer of said amplifier/mixer assemblies, with one of said pair of signal generators being also operatively connected to another electrode.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)